fiber, low fluid intake (except US GEs), and use of concomitant medications as leading causes of constipation, whereas physicians in the UK and Germany also considered sedentary lifestyle to be an important factor. GEs and GPs from all countries defined normal stool frequency to range from 2-3 BMs daily to one BM every 2nd/3rd day, consistent with criteria proposed by Connell (*BMJ 2: 1095, 1965*). Awareness of Rome Criteria was 98%, 62% & 54% among GEs from US, UK & Germany, but was lower among GPs (54%, 12% & 23% in US, UK & Germany, respectively). Regardless of awareness, few physicians (GEs: 15-29%, GPs: 4-9%) reported using the Rome criteria for diagnostic purposes. In all countries, almost all physicians indicated recommending lifestyle change as part of their initial approach for treating constipation. Recommendation of laxatives however, differed among countries. In the US, the majority of GEs (94-100%) and GPs (68-100%) reported recommending laxatives as initial treatment for all levels of constipation severity (mild - severe). In contrast, only 12 and 8% of GEs and 25 and 4% of GPs in the UK and Germany, respectively, reported recommending laxatives initially for mild constipation, but increased their use with increasing severity and in follow-up consultation. Conclusions: There is need to educate both GEs and GPs in the US, UK, and Germany about symptoms, causes, diagnostic criteria, and treatment of constipation.

M1806

Complaints Suggestive of Irritable Bowel Syndrome Are Common in Patients with Puborectalis Dyssynergia: An Under-Recognized Overlap Syndrome

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Background: The irritable bowel syndrome with constipation (IBS-C) and chronic constipation (CC) are common conditions which share many of the same symptoms. A substantial proportion of constipated patients (pts) have puborectalis dyssynergia (PD) which can interfere with normal defecation. Most experts feel that the primary means of distinguishing between IBS-C and CC relies upon the presence or absence of abdominal pain. The aim of this study was to investigate how commonly IBS symptoms are reported in pts with PD. Methods: We conducted a retrospective analysis of pts referred to a tertiary center for persistent constipation. All pts completed validated surveys (PAC-SYM = 12-item survey which measures the severity of constipation-related symptoms & PAC-QOL = 28-item survey which measures constipation-associated quality of life) and underwent defecography. All defecographies were read by a single radiologist blinded to survey results. Using standardized criteria, PD was defined as the inability to relax the puborectalis and/or straighten the anorectal angle. PAC-SYM & PAC-QOL were scored on a 0-4 scale (higher scores = increased severity). Average scores for each question were determined for pts with and without PD. Two-tailed T-tests were performed to identify differences between groups. Results: Of 59 pts (48 women) evaluated, 21 (avg age 53) had PD, while 38 (avg age 54) did not. 29% of PD pts and 24% of pts without PD had been diagnosed with IBS prior to defecography. PD pts had significantly higher PAC-SYM abdominal symptom subscale scores than pts without PD (p=0.02). Compared to pts without PD, PD pts had higher scores for abdominal discomfort, abdominal pain, stomach cramps and bloating (see table). On PAC-QOL, PD pts reported having to be careful about what they ate (p=0.03), worrying about not being able to open their bowels when needed (p=0.01), and passing fewer bowel movements than they would like (p=0.02) compared to pts without PD. Conclusions: When compared to pts without PD, PD pts had more severe abdominal discomfort or pain, stomach cramps, and bloating, all symptoms commonly associated with IBS. Significant differences in disease specific QoL were also present between those with and without PD. Our results highlight the need to consider PD in pts with IBS-C. Prospective studies to better understand the overlap between IBS-C and PD are warranted.

PAC-SYM results

Abd symptoms	+PD	Standard error	-PD	Standard error	p-value
Discomfort	2.71	0.27	2.22	0.20	0.14
Pain	2.52	0.30	1.62	0.20	0.01
Cramps	2.48	0.25	1.41	0.19	0.002
Bloating	2.90	0.26	2.30	0.21	0.05

M1807

Anorectal and Bowel Syndromes in Fibromyalgia: Results of a Survey Using ROME II Criteria in the Spanish Population

Cristina Almansa, Enrique Rey, Monica O. Garcia Alonso, Raquel Garcia Sanchez, Angel Alvarez Sanchez, Manuel Diaz-Rubio

Coexistence of irritable bowel syndrome (IBS) and fibromyalgia (FM) is wellknown, however the prevalence of other lower functional digestive disorders (FDD) in FM has not been described. Besides, the prevalence of IBS in FM using Rome II criteria has been only assessed in one study and to our knowledge there are not yet data available in Spanish population(1). AIM:Evaluate the prevalence of lower FDD in Spanish patients with FM. METHODS:100 FM patients were matched by age and gender with 100 healthy controls. To assess the prevalence of lower FDD all individuals completed the Rome II Integrative Questionnaire, previously validated into Spanish. Statistical analysis was done using chi squared and Fisher's test. RESULTS:Both cohorts were formed by 93% of females, mean age 50.5 years (range 25-74) for cases and 50.3 (range 25-79)for controls. The frequency of all lower symptoms in patients was significantly higher than in controls(Table 1). The prevalence of IBS in FM is clearly increased (39% vs. 3%. Functional bloating, constipation, incontinence, levator ani syndrome and proctalgia fugax were other lower FDD significantly more frequent in FM (Table 2). CONCLUSIONS: IBS prevalence in Spanish FM patients using Rome II criteria is the half of recently reported in US using the same criteria (1); however our data are in consonance with others performed using Rome I (2). The most innovative feature in our study is the first time description of a high prevalence of anorectal syndromes in FM

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Table 1. Prevalence of symptoms

location	Symptom	Control P(CI 95%)	Cases P(CI 95%)
Bowel	Abdominal pain	8(3-13)	75(66-83)*
	Constipation	14(7-21)	56(46-66)*
	Bloating	14(7-21)	88(82-94)*
	Diarrhea	4(0-8)	35(26-44)*
Anorectal	Anorectal pain	6(1-11)	43(33-52)*
	Incontinence	32(22-41)	56(46-66)*

Table 2. Prevalence of lower functional disorders

Location	Disorder	Control P(CI 95%)	Cases P(CI 95%)
Bowel	IrritableBowel Synd.	3(0-6)	39(29-49)**
	F.Bloating	12(6-18)	34(25-43)**
	F.Constipation	5(1-9)	15(8-22)*
	F.Diarrhea	0	2(0-5)
	Unspecified	18(10-25)	82(74-89)**
Abdominal Pain	F.Abdom. Pain Synd.	25(16-33)	45(35-55)**
	Unspecified Abdom. Pain	0	4(0-8)
Anorectal	F.Incontinence	25(16-33)	45(35-55)**
	Levator Ani Synd.	4(0-8)	23(15-31)**
	Proctalgia Fugax	1(0-3)	10(4-16)*
	Pelvic Floor Dyssinerg	4(0-8)	7(2-12)

*<0.05 **<0.001

M1808

Making IBS a "Diagnosis of Inclusion": Development of a New Diagnostic Criteria for IBS

Kimberly Low, Laura J. Hwang, Ara Sahakian, Janet Yang, Sheila Lezcano, Eric A. Vasiliauskas, Andrew Ippoliti, Patricio Ibanez, Mark Pimentel

After full workup to exclude other disorders such as Celiac or inflammatory bowel disease (IBD), the Rome Criteria can be used to determine the presence of irritable bowel syndrome (IBS) for enrollment in clinical trials. This treats IBS as a diagnosis of exclusion. Based on the premise that patients with IBD have symptoms that flare and remit over weeks to months and IBS symptoms fluctuate more on a daily basis, this study tests a new potential IBS criteria to distinguish IBS from IBD. Methods: Patients with IBS were identified. All subjects had to meet Rome I Criteria after full work up did not identify any other gastrointestinal disorder. Patients with IBD were also recruited for comparison. IBD patients included biopsy-proven Crohn's Disease and Ulcerative Colitis patients with active inflammation. In addition, newly diagnosed Celiac Disease patients not yet on an appropriate celiac diet were also recruited. Patients were excluded if they had a recent history of blood in their stool, or abdominal surgeries. IBD and IBS patients were asked to complete a questionnaire emphasizing two main questions. The first was to consider the past 7 days and indicate all stool forms seen out of 6 possibilities, watery diarrhea to hard pebbles. The second was to answer a 3 choice question about bowel function. The three choices were based on the irregularity of bowel habits. When data were not normally distributed, Wilcoxon rank sum testing was used. Results: Between IBS and IBD patients there was no difference in sex, age or number of bowel movements (15.0+/-11.9 and 19.0+/-13.8 per week in IBS and IBD, respectively, P=not significant). Fulfillment of Rome Criteria could not discriminate IBD from IBS since 86.7% of IBD patients were positive. However, with stool form, IBS patients had 3.6+/-1.3 different types in the past 7 days while IBD patients had 2.2+/-1.1 ($p<0.001$). 80.5% of the IBS patients had 3 or more stool types per week, as compared to 40.0% of the IBD patients ($p<0.01$). On the second question, only 19.6% of IBS subjects stated their bowel movements were the same type every day, as compared to 73.0% of IBD subjects ($p<0.001$). When the factor of greater than 3 different stool forms and the question of daily variability were combined, 71.0% of patients in the IBS group had both factors compared to 6.7% in the IBD group ($P<0.001$). The sensitivity and specificity of this comparison to separate IBS from IBD was 98% and 47%, respectively. Conclusion: In contrast to Rome Criteria, varied stool form and frequency can readily discriminate IBD from IBS even without red flags. Formulating criteria based on these factors may make IBS a "diagnosis of inclusion".

M1809

What Drives Health-Care Utilization in Patients with Functional Dyspepsia (FD) in a Tertiary Referral Center?

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Background: Patients with functional dyspepsia (FD) have a high health-care utilization, but data on the factors that determine consultations are lacking. We thus aimed to determine health care utilization before and after referral to a tertiary referral center and elucidate links between health-related quality of life (HRQOL), psychological co-morbidities and health-care utilization in FD patients. **Methods:** 235 consecutive FD patients with chronic refractory symptoms (>5 years) were investigated. 337 healthy consecutive blood donors (BD) served

as controls. In the FD patients, the number of consultations 12 months prior to referral was assessed as dependent variable. Utilizing validated instruments, generic and disease-specific HRQOL (SF-36 Mental (MCS) and Physical Composite Scores (PCS)), Nepean Dyspepsia Index (NDI), psychological morbidity (SCL-90-R), sense of coherence (SOC), and anxiety and depression (HADS) were assessed. **Results:** During the 12 month period prior to presentation at the tertiary center and compared to BD, FD patients had on average 26.3 (95% CI 21.4-33.7) vs. 3.2 (1.5-5.1, p<0.001) consultations, while 12 months after referral the consultation rate dropped to 8.4 (7.2-13.6). In FD patients but not BD, health care utilization was significantly linked to psychological co-morbidity (adjusted r2=0.22) but not symptom severity of symptoms or sociodemographic status. In FD, HRQOL was significantly impaired compared to controls (PCS = 40.6±8.9 vs. 55.6±5.5; MCS = 39.7±11.4 vs. 51.5±8.8, p both <0.0001). In FD, stepwise multiple regression yielded symptom severity (p<0.001) and age (p<0.002) as independent predictors (adjusted r2=0.38) of PCS. MCS was independently predicted by depression (p<0.001), symptom severity (p<0.01), and stress (p=0.02) (adjusted r2=0.62). Dyspepsia-specific HRQOL was independently explained by symptom severity (p<0.001), depression (p<0.005), and autonomic sensations (p=0.03) (adjusted r2=0.51). **Conclusion:** FD patients referred to a tertiary center have very high resource utilization prior to referral. Interestingly health care seeking as measured by the number of consultation significantly decreased by more than 60 % after referral to a tertiary center. Compared to controls, HRQOL is severely impaired and closely linked to psychiatric co-morbidity rather than symptom severity. The data suggest that referral to a tertiary center decreases health care utilization and psychiatric co-morbidity is a key factor linked to health care utilization.

M1810

Prevalence of Functional Gastrointestinal Disorders in Patients with Ineffective Esophageal Motility

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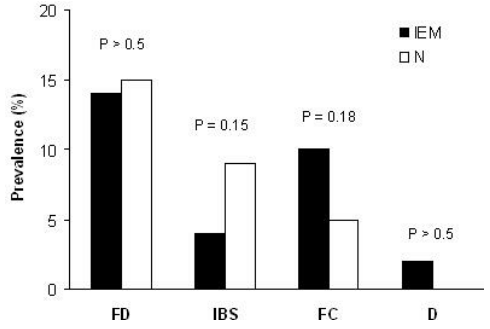
Background: The pathogenesis of ineffective esophageal motility (IEM) remains poorly understood; although gastro-esophageal reflux disease has been implicated, it is unknown whether IEM represents a primary motor disorder confined to the esophagus or is part of a more diffuse enteric disorder. We hypothesised that IEM patients may exhibit more widespread hypomotility and thus may display a different distribution of functional gastrointestinal disorders (FGIDs) when compared to patients displaying normal esophageal manometry (N). Aim: To compare the prevalence of specific FGIDs (functional dyspepsia [FD], irritable bowel syndrome [IBS], functional constipation [FC] and functional diarrhea [D]) in patients fulfilling manometric criteria for IEM and in N patients. Methods: 100 patients (66 F, mean age 58±15 y) with IEM and 100 N patients (66 F, 53±15 y) were studied. All patients presented with symptoms of heartburn, dysphagia or chest pain and completed the Rome II integrative questionnaire. Results: The prevalence of any FGID was similar in both groups (IEM 30% and N 29%). The distribution of individual FGIDs was qualitatively different between the two groups, with a lower IBS prevalence but a higher FC prevalence in IEM than in N (Figure). Also, IEM had a higher prevalence of dysmotility-like FD (10%) than N (6%, P=0.09). All IEM patients with FC featured uncoordinated or simultaneous oesophageal peristaltic patterns. Conclusion: Dysmotility-like FD and FC are the most prevalent FGIDs in IEM patients, suggesting the possibility of more widespread gastrointestinal hypomotility in some patients with IEM.



M1811

Factor Analysis Demonstrates a Symptom Cluster Related to Methane Production in Irritable Bowel Syndrome (IBS)

Marc D. Makhani, Janet Yang, James M. Mirocha, Kimberly Low, Mark Pimentel

Patients with irritable bowel syndrome (IBS) who produce methane on lactulose breath test (LBT) have constipation symptoms. However, other intestinal symptoms have not been fully assessed. The goal of this study was to conduct a factor analysis on IBS patients who had breath testing. METHODS: Rome I IBS patients referred for LBT completed a questionnaire assessing 31 intestinal symptoms. Patients were asked to rate the degree of each on a VAS scale of 0-5. Exploratory factor analysis was performed separately in methane and non-methane subjects. The squared multiple correlation method was used to estimate the communalities. The number of factors to retain was determined by reviewing eigenvalues and scree plots. We used a loading threshold of +/- 0.40 (on promax rotation). In the methane group 6 factors were retained, accounting for 72% of the variance. In the non-methane group 3 factors were retained, accounting for 80% of the variance. We created scores for each symptom cluster by summing related variables. We then compared the mean scores between the 2 groups by the Wilcoxon rank sum test. RESULTS: 459 IBS patients were evaluated (72 methane, 387 non-methane). Three factors in methane-producing subjects were explored (bloating cluster, pain cluster, and constipation cluster). Of non-methane producing subjects, 2 factors were used (bloating cluster and diarrhea cluster). For bloating clusters, there was no significant differences between groups in both factor analyses (p= 0.29 for non-methane bloating cluster and p=0.13 for methane bloating cluster). For the pain weighted cluster, a small difference was seen (p=0.07), with the mean rank sum of symptoms being 13.8+/-6.9 for the non-methane group and 12.2 +/- 6.9 for the methane group. In the methane group there was a significant group difference with the constipation cluster (p=0.002). The mean of symptoms was 13.4 +/-4.9 in the non-methane group as compared to 15.3 +/- 4.9 in methane. The symptoms of this cluster included constipation, lack of milk intolerance, lack of weight loss, small bowel movements, and straining. In non-methane subjects, there was also a difference in the diarrhea cluster (p=0.001), which included diarrhea, pain with bowel movements, pain after bowel movements, foul-smelling bowel movements, and large bowel movements. The mean rank sum of symptoms was 14.2 +/- 8 in the non-methane group and 11.3 +/- 6.5 in methane. CONCLUSIONS: IBS patients with methane have a unique cluster of symptoms (not just constipation). Non-methane IBS patients also have a unique cluster of symptoms.

M1812

Are Rectal Hypersensitivity and Compliance Associated to Symptoms in IBS Patients?

Mónica García Alonso, Enrique Rey, Raquel García Sánchez, Cristina Almansa, Angel Alvarez Sanchez, Manuel Diaz-Rubio

Its unknown to what extend rectal sensitivity or compliance contributes to the heterogeneous symptom profile of IBS patients. Aim. Our aim was to evaluate if symptom profile in IBS are related to rectal compliance and sensitivity abnormalities. Material and methods. We include consecutive IBS patients, defined according to Rome II criteria. Compliance and sensitivity to rectal distension was evaluated with a phasic distension protocol using a barostat. All of them completed a sociodemographic questionnaire and a questionnaire of symptoms including frequency of abdominal pain, defecation frequency, stool form, defecation strain, evacuation urgency, and feeling of incomplete evacuation. Patients with discomfort threshold (DT) below the lower limit of the 95% CI of control subjects (28 mmHg), were considered Hypersensitive. Those with rectal compliance above 8 were considered to have High Rectal Compliance. Quantitative variables were compared using ANOVA and the qualitative ones with chi-2. Results. 75 patients were included (64 women). 43 patients were classified as 43 hypersensitive (32 normosensitive) and 28 patients had high compliance (47 normal compliance). Hypersensitive patients referred urgency (25.6% vs 6.2%) and feeling of incomplete evacuation (62.8% vs 40.6%) more frequently than normosensitive, and also hypersensitive patients had a higher probability of suffering pain every day than normosensitive patients (76% vs. 24%). Patients with high rectal compliance did no show any difference with those with normal compliance. Conclusion. In IBS patients, hypersensitivity is associated with suffering daily pain and rectal symptoms (urgency and incomplete evacuation).

M1813

Incidence,Etiology and Management of Rapid Gastric Emptying At An Academic Motility Center

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Purpose: Our aims were to identify the current incidence of rapid gastric emptying as assessed by scintigraphy, determine the spectrum of symptoms present, the underlying pathophysiology and effectiveness of available medical therapies. Method: 543 patients, referred to one of the investigators (RMC), underwent a 4 hour scintigraphic gastric emptying test for evaluation of symptoms of nausea, vomiting, abdominal pain and diarrhea from 01/03 to 10/07. Rapid gastric emptying for this study was defined as isotope retention of < 60% at 1 hr and <30% at 2 hrs following a standardized low fat (2%), 260 kilocalorie egg beater meal. Result: 56/543 (10.3%) of the patients (34 females, mean age 47 years, range 32-62 years) met criteria for rapid gastric emptying. Their mean gastric isotope retention at 1 hr was 43% (Range 26-60%) and 2hrs was 17% (Range 6-28%). 20/56 (36%) of these patients had nausea, vomiting and abdominal pain attributed to cyclic vomiting syndrome and 9/20 (45%) of the CVS patients also had symptoms of co-existing irritable bowel syndrome. 18/56(32%) of the total number of patients had unexplained nausea and vomiting, 12/18 (67%) of this group were considered to have non ulcer dyspepsia, while 6/18 (33%) had preexisting diabetes mellitus. 8/56(14%) patients had a previous fundoplication with accidental vagotomy as documented by sham meal testing while 3/56(5%) had undergone gastric bypass surgery for obesity. 7/56(13%) patients had abdominal pain and/ or diarrhea with working diagnosis of irritable bowel syndrome. Treatment for rapid emptying included dietary management (separating liquid/solid components and fiber supplement), anticholinergics (Dicyclomine 40-160mg/day) and back up immodium or tincture of opium. Octreotide,50-100 mcg subcutaneously initially before meals followed by 20-30 mg intramuscularly as a long acting monthly injection resulted in resolution of symptoms in the 14% of the patients whose symptoms of dumping were not adequately controlled by the other approaches. Conclusion: 1. Rapid gastric emptying (dumping syndrome) can be identified in a sizeable subset of patients undergoing scintigraphic gastric emptying for assessment of unexplained nausea, vomiting, abdominal pain and diarrhea. 2. It should be considered in patients with the diagnoses of cyclic vomiting syndrome, non ulcer dyspepsia, diabetes mellitus, post fundoplication, obesity surgeries and where symptoms are being attributed to irritable bowel syndrome. 3. Once recognized, available therapeutic strategies are effective including the role of octreotide for a refractory subgroup.

M1814

The Use of 'Red Flags' and Colonoscopy in the Diagnosis of Irritable Bowel Syndrome in Clinical Practice

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Background: Irritable bowel syndrome (IBS) is a common medical disorder, reported to occur in 10-15% of the adult US population. The diagnosis of IBS includes screening for 'red flags'. Utilization of colonoscopy as a diagnostic tool for IBS is recommended only in